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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,387	11/19/2001	Paul Van Der Veen	P 284021 P-0217.010-US	8241
909	7590	11/02/2004	EXAMINER	
PILLSBURY WINTHROP, LLP P.O. BOX 10500 MCLEAN, VA 22102			JOHNSTON, PHILLIP A	
			ART UNIT	PAPER NUMBER
			2881	

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

78

<b>Office Action Summary</b>	<b>Application No.</b> 09/988,387	<b>Applicant(s)</b> VAN DER VEEN, PAUL	
	<b>Examiner</b> Phillip A Johnston	<b>Art Unit</b> 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 6-22-04, and 7-7-04.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Detailed Action***

1. This Office Action is submitted in response to RCE filed 6-22-2004 and supplemental amendment filed 7-07-2004, wherein claim 2 is cancelled and claim 1 is amended. Claims 1, and 3-14 are pending.

***Claims Rejection – 35 U.S.C. 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, and 3-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,369,398 to Gelernt, in view of Kleinschmidt, U.S. Patent No. 6,160,832.

Gelernt (398) discloses a lithographic system and method used in the fabrication of integrated circuits, having a source of radiation 110 that exposes a resist 160, that has been coated on the substrate surface 180, and a mask 130, positioned between the light source 110 and the substrate 180; as well as a lens component 120 used to

collimate the light, or radiation, to illuminate the mask 130, as recited in claims 1 and 11,12, and 14. See Column 1, line 30-47.

Gelernt (398) fails to teach the use of an acoustic sensor in detection and control of light source intensity. However, Kleinschmidt (832) discloses a lithography source calibration apparatus and method that, instead of using the optogalvanic effect to measure the light absorption through the gas of the module using, e.g., a photodiode or photomultiplier tube, a microphone for photoacoustic detection may be used. See Column 10, line 59-65.

Kleinschmidt (832) also discloses a main control unit 4 communicates electronically with a motor drive 6 for a line-narrowing and tuning block 5, as well as with a display 8. The main control unit 4 is either a standard PC or an especially designed microprocessor unit for controlling the laser system.

The system further includes a signal processing and driving source 3 for the wavelength calibration module 2. The signal processing and driving source 3 provides an electrical supply for the wavelength calibration module 2. The signal processing and driving source further detects changes in current through the galvatron when irradiated with narrow bandwidth radiation matching a transition line of the gaseous element 21, as recited in claims 1,3,4, and 9. See Column 7, line 26-42.

Therefore it would have been obvious to one of ordinary skill in the art that Gelernt's (398) lithographic exposure system can be modified to use the acoustic detection apparatus and method in accordance with Kleinschmidt (832), to monitor and control the intensity of light traversing the chamber, thereby minimizing the

intensity attenuation due to air absorption, and improving production cycle time, which is an objective of both the Gelernt (398) and Kleinschmidt (832) inventions.

4. Claims 5-10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gelernt (398) and Kleinschmidt (832) in view of Yamaguchi, U.S. Patent No. 5,333,495.

The combination of Gelernt (398) and Kleinschmidt (832) discloses nearly all the limitations of claims 5-10 and 13, but fails to disclose the detection of vibration in an object and use it to control beam intensity of a lithography apparatus. However, Yamaguchi (495) discloses a method and apparatus for detection of surface acoustic waves in semiconductor wafers due to the well-known photo-acoustic effect. See Column 4, line 15-34.

It is also implied herein that those of ordinary skill in the art of lithography light sources such as Gelernt (398) and Kleinschmidt (832), would be motivated to utilize the well-known method of ellipsoidal focusing to direct sound generated by the beam to the detector, as recited in claims 9 and 10. See for example Melnychuk, U.S. Patent No. 6,586,757

Therefore it would have been obvious to one of ordinary skill in the art that the lithographic exposure system of Gelernt (398) and Kleinschmidt (832) can be modified to use the detection of surface waves in accordance with Yamaguchi (495), to provide a photoacoustic signal for detecting vibrations in a semiconductor wafer caused by the incident light source, thereby controlling the laser system.

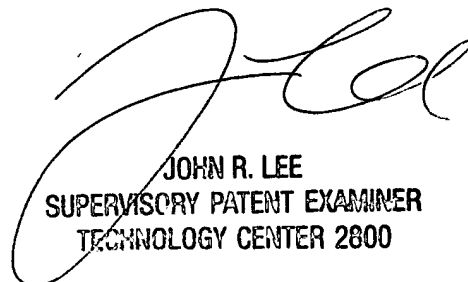
**Conclusion**

5. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (571) 272-2475. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor John Lee can be reached at (571) 272-2477. The fax phone number for the organization where the application or proceeding is assigned is 703 872 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PJ

October 22, 2004



JOHN R. LEE  
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